

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001943**Date Inspected:** 29-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2100**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

OBG/Tower Sub Assembly**Bay 7-OBG - Floor Beam Sub Assembly:**

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Chen Chuan Zong ID #044824 fillet welding floor beam flange plate to floor beam web plate for FB025-01-093. Mr. Chen was observed welding in the 2F (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Hu Wei Qing to be: preheat temperature of 60°C and welding parameters amps of 292, volts of 29.6, and a travel speed of 433 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2232-TC-U4B-F. ZPMC welding repair report number B-WR137.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Sun Ling ID #0 fillet welding floor beam stiffener to floor beam flange and web plate for FB03-03-011, 012 and 024. Mr. Sun was observed welding in the

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2F (horizontal) position utilizing a shielded metal arc welding (SMAW) process with a 5.0mm diameter electrode, filler metal brand E7018, brand TL-508, manual.. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: preheat temperature of 36°C and welding parameters amps of 207. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2112.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Yang Xu Hu ID#057795 tack welding floor beam web splice for FB011-007. Mr. Yang was observed welding in the 2F (horizontal) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, brand TL-508, manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: preheat temperature of 76°C and welding parameters amps of 160 respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2211-B-U2-FCM.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Wu Xian Jian ID #066445 fillet welding joining floor beam diaphragm stiffener plates to floor beam diaphragm plate for FB003-010-060, 068, 075, 083 and 084. Mr. Wu was observed welding in the 3F (vertical) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class THJ506Fe-1 manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Hu Wei Qing to be: preheat temperature of 60°C and welding parameters amps of 151. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2113.

Bay 4 – Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Lv Peng ID #048617 welding lifting lugs to various diaphragm plates. Mr. Lv was observed welding in the 2F (horizontal) position utilizing a shielded metal arc welding (SMAW) process with a 5.0mm diameter electrode, filler metal brand E7018, class THJ506Fe-1 manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Zhao Chen Sun to be: preheat temperature of 180°C and welding parameters amps of 190. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-4112-3.

Bay 4 – 23/33/43 Meter Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening diaphragm plate various diaphragm plates. ZPMC report #HSR1(T)-233, 23M top P9(S), HSR1(T)-067, 33M top P830(E) and HSR1(T)-0154, 43M top SA234(S). Cause for heat straightening mill induced distortion. Heat Straightening method by flame straightening with natural gas/oxygen acetylene using a hand torch.

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Bay 8 – 28 Meter Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ying ID #045270 groove welding fill pass's joining SA309 (E) to P775 (E) weld joint ESD1 SA309-11A/12A. Mrs. Ma was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENIS machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Sha Zhi verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Sha Zhi to be: preheat temperature of 180°C and welding parameters amps of 590, volts of 30.8, and a travel speed of 475 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Bay 8 – 38 Meter Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Xi Pei Pei ID #048431 groove welding fill pass's joining SA293 (S) to P559 (S) weld joint SSD1-SA293 1A/2A. Mrs. Xi was observed welding in the 1f (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENIS machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Sha Zhi verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Sha Zhi to be: preheat temperature of 180°C and welding parameters amps of 608, volts of 31.2, and a travel speed of 485 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3211-B-U3b-1.

Bay 8 – 23/33/43 Meter Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening diaphragm plate various diaphragm plates. ZPMC report #HSR1(T)-233, 23M top P9(S), HSR1(T)-067, 33M top P830(E) and HSR1(T)-0154, 43M top SA234(S). Cause for heat straightening mill induced distortion. Heat Straightening method by flame straightening with natural gas/oxygen acetylene using a hand torch.

OBG Assembly Shop

Bay 2 – OBG Side Plate:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Sun Gu Zuo ID ID#058100 groove welding fill/cover pass's at Seg018A-001 joining SP053-01 to SP065-01 and Seg014A-001 joining SP076-01 to SP064-01. Mr. Sun was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand JW-3, class EM12K machine. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Chen Chin Ming verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Chen Chin Ming to be: preheat temperature of 40°C and welding parameters amps of 685/505, volts of 32.5/30.5, and a travel speed of 540/459 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-223(2)-1T.

Bay 2 – OBG Side/Bottom Plates:

QA Inspector Brannon randomly observed ZPMC personnel trimming side and bottom plates by method of flame cutting with natural gas.

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The following digital photograph below illustrates observation of the activities being performed.



Summary of Conversations:

As stated within the report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Brannon,Sherri
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Quality Assurance Inspector

Reviewed By:	Cuellar,Robert
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QA Reviewer
